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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/822,725	04/13/2004	Sachiko Hoshino	1309.43768X00	3017

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EXAMINER

IWASHKO, LEV

ART UNIT PAPER NUMBER

2186

DATE MAILED: 02/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/822,725

**Applicant(s)**

HOSHINO ET AL.

**Examiner**

Lev I. Iwashko

**Art Unit**

2186

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 8-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4-7 is/are allowed.
- 6) ☒ Claim(s) 1-3 and 8-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>07/06/2005</u> | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. The amendments to Claims 1-7 and 10 have been acknowledged.
2. The objections due to informalities in Claims 1-10 have been overcome and are therefore withdrawn.
3. Claims 1-3 and 8-10 stand rejected.

### ***Allowable Subject Matter***

4. Claims 4-7 are allowed. The following is an examiner's statement of reasons for allowance: Claims 4-7 have been thoroughly amended to overcome the 112 2<sup>nd</sup> paragraph rejections.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Claim Rejections - 35 USC § 102***

5. The following are quotations of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting

directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. Claims 1-3 and 8-10 are rejected under U.S.C. 102(e) as being anticipated by Suzuki et al. (US PGPub 2005/0144380)

- Claim 1. A storage subsystem, comprising:
- a plurality of channel adapters that each controls the exchange of data with a host device; (*Section 0046, lines 1-2*)
  - a plurality of storage device groups that each provides a logical storage region; (*Section 0028, lines 8-14*)
  - a plurality of disk adapters that each controls the exchange of data with each of the storage device groups; (*Section 0046, line 4*)
  - a cache memory that is used by each of the channel adapters and each of the disk adapters; (*Section 0028, lines 7-8*)
  - a plurality of cache partition regions constituted by logically partitioning the cache memory; (*Section 0049, lines 1-2 – State that there are “One or more cache partitions (CLPR: cache logical partitions)”. Therefore, this claim is taught by Suzuki.*)
  - and a control memory that stores management information for managing each of the cache partition regions, (*Section 0063, lines 1-4 – State the following: The shared memory (or control memory) 60 is constituted for example by a nonvolatile memory. For example, control information and the like is stored in the shared memory 60. Section 0078, lines 12-14 – State the following: “Like the other tables, this cache managing table T3 can be stored in the shared memory 60 or in the shared memory 60 and SVP 100.”*)
  - wherein the management information is constituted by both a plurality of partition management information that is used to independently manage corresponding ones of the cache partition regions, and common management information that is used to manage a plurality of the cache partition regions. (*Section 0076, lines 1-10 and Section 0077, lines 1-8 – State the following: “Next, the management method of the cache memory 30 will be described. As is shown in FIG. 5, the cache memory 30 is split into logical dividing units called slots” (a.k.a. a plurality of cache partition regions). “Each slot is further split into logical dividing units called segments. The cache capacity is assigned to the respective CLPRs in slot units. Meanwhile, in the CLPR managing table T12 shown in FIG. 4, the cache capacity is*

*managed in segment units" (a.k.a. independently managed regions)". With the above having been referenced, it is clearly shown that Suzuki does in fact teach information that aids in managing individually and a plurality of cache partition regions.)*

- Claim 2. (AMENDED) The storage subsystem according to claim 1, wherein the partition management information and the common management information are established based one an indication of a kind of status in which data is stored in an area of the cache partition region. (Section 0078, lines 1-14 – Recite that the status of the data is "clean")
- Claim 3. (AMENDED) The storage subsystem according to claim 1, wherein:
- the management information is constituted by submanagement information of a plurality of types; (Section 0051, lines 1-11; Section 0076, lines 5-7)
  - and the partition management information are constituted by partitioning, based on an indication of a kind of status in which data is stored in an area of the cache partition region, some of the submanagement information items for each of the cache partition regions, the remainder of the submanagement information being used as the common management information. (Section 0028, lines 8-14. (Section 0078, lines 1-14 – Recite that the status of the data is "clean")
- Claim 8. (ORIGINAL) The storage subsystem according to claim 1, wherein each of the cache partition regions can be established for each of the channel adapters. (Section 0081, lines 4-6)
- Claim 9. (ORIGINAL) The storage subsystem according to claim 1, wherein one cache partition region among the cache partition regions is established as a common region and a new cache partition region is established by allocating resources belonging to the common region. (Section 0049, lines 9-16)
- Claim 10. (AMENDED) A method for controlling a storage subsystem that comprises:
- a plurality of upper interface control units that each controls the exchange of data with a host device; (Section 0080, lines 3-11; Section 0044, line 5-7; Figure 1, reference CN1)
  - a plurality of storage device groups that each provides a logical storage region; (Section 0012, lines 5-11)
  - a plurality of lower interface control units that each controls the exchange of data with each of the storage device groups; (Section 0050, lines 12-15; Figure 1, reference CN4)

Art Unit: 2186

- and memory section that is used by each of the upper interface control units and each of the lower interface control units, (*Figure 1, reference 10, reference CN1 and reference CN4*))
- the method comprising the steps of: (*Section 0077, lines 1-2*)
  - o partitioning a cache region provided by the memory section into a plurality of cache partition regions; (*Section 0077, lines 2-5, Figure 5*)
  - o wherein management information corresponding to the cache partition regions is provided for independently managing each of the cache partition regions and common management information is provided for managing a plurality of the cache partition regions; (*Section 0076, lines 1-10 – Same arguments as in claim 1*)
- and independently managing data in each of the cache partition regions based on partition management information and managing data in a plurality of the cache partition region based on the common management information. (*Section 0076, lines 1-7 – Same arguments as in claim 1*)

### ***Response to Arguments***

7. Applicant's arguments (filed January 6, 2006) with respect to claims 1-3 and 10 have been considered but are moot in view of the new ground(s) of rejection.

8. Applicant made no attempt to amend Claims 8-9, so they still stand rejected.

### ***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

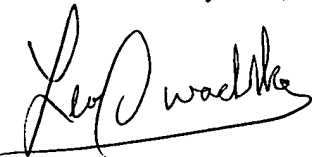
Art Unit: 2186

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lev I. Iwashko whose telephone number is (571)272-1658. The examiner can normally be reached on M-F (alternating Fridays), from 8-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on (571)272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Lev Iwashko



**MATTHEW D. ANDERSON**  
**PRIMARY EXAMINER**